

## CLAIMS

What is claimed is:

- 5 1. A device for collecting ions, in particular in a mass spectrometer, having at least one secondary electron multiplier (SEM), the SEM being formed in the manner of a card, specifically substantially box-like and with a small thickness in relation to its length and width, characterized in that the SEM is held in a frame.
- 10 2. A device according to Claim 1, characterized in that the SEM has an ion inlet opening or a narrow side, the frame has a passage opening for the ions on a narrow end side, the inlet opening and the passage opening being aligned with each other, and the SEM is at least partially inserted into the frame on a further narrow side of the latter which is located transversely with respect to the narrow end side.
- 15 3. A device according to Claim 1 or 2, characterized in that a flat flexible printed circuit board having a plurality of parallel conductors is connected to the SEM.
4. A device according to Claim 2 in which a channel is connected to the inlet opening and  
20 the channel input of the SEM is earthed.
5. A device according to Claim 1, 2 or 4 further characterized in that the frame is adapted to be connected to a holder at its narrow underside.
- 25 6. A device according to Claim 5 characterized in that the frame has holding means to connect the frame to at least one guide means.
7. A device according to Claim 1, 2 or 4 characterized in that a plurality of SEMs are provided with frames, the frames being held on at least one common guide means and being  
30 capable of being positioned relative to one another at defined intervals on the common guide means.
8. A device according to Claim 7 characterized in that, in addition, at least one Faraday cup whose external dimensions correspond to those of the frame is held on the guide means.
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9. A device according to Claim 7 characterized in that groups of frames are provided which contain either at least one Faraday cup and otherwise at least one SEM or which contain more than one SEM at least one Faraday cup or SEMs in a group connected to a holder by their narrow underside and the Faraday cups and SEM within the same groups are arranged on one or  
5 more common guide means via holding means and capable of being positioned relative to one another.

10. Mass spectrometer, in particular an isotope mass spectrometer, having an ion collecting device according to any one of the preceding claims.

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